

What is claimed is:

5 1. In a disc drive having a spindle motor hub and a number of prewritten discs, each prewritten disc having a prewritten servo pattern and an alignment mark, a method for forming a disc stack assembly to reduce servo pattern runout, the method comprising steps of:

- (a) placing a first prewritten disc about the spindle motor hub of the disc drive;
- (b) aligning the disc alignment mark of the first prewritten disc in relation to a direction of a corresponding biasing force;
- (c) applying the corresponding biasing force to the first prewritten disc to pressingly engage the first prewritten disc against the spindle motor hub;
- (d) repeating steps (a) through (c) for each remaining prewritten disc in the disc stack assembly; and
- (e) clamping the prewritten discs with a disc clamp to secure the position of each prewritten disc relative to the spindle motor hub.

10 2. The method of claim 1 wherein the number of discs is 1.

15 3. The method of claim 1 wherein the number of discs is greater than 1.

20 4. The method of claim 3 wherein the biasing forces are applied at even angular intervals about an outer diameter of the prewritten discs.

25 5. The method of claim 3 wherein the number of discs is an even number.

30 6. The method of claim 5 wherein, for each disc in the disc stack assembly, the corresponding biasing force for a particular disc is opposite from a biasing direction corresponding to any disc above and below the particular disc.

7. The method of claim 1 wherein at least one of the steps is performed by a robotic assembly.

5 8. The method of claim 1 wherein at least one of the steps is performed by a human worker on an assembly line.

9. A disc drive disc stack assembly formed in accordance with the method of claim 1.

10. A disc drive, comprising:
a housing;
a read/write head;
an actuator assembly to position the read/write head; and
5 a disc stack assembly comprising a spindle motor hub, a disc clamp and
a number of prewritten discs, each disc having an alignment mark,
the disc stack assembly formed by steps of:
(a) placing a first prewritten disc about the spindle motor hub of
the disc drive;
(b) aligning the first prewritten disc alignment mark with a
direction of a corresponding biasing force;
(c) applying the corresponding biasing force to the first prewritten
disc to pressingly engage the first prewritten disc against the
spindle motor hub;
15 (d) repeating steps (a) through (c) for every other prewritten
disc in the disc stack assembly; and
(e) clamping the prewritten discs with the disc clamp to secure the
position of each prewritten disc relative to the spindle motor
hub.

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11. The disc drive of claim 10 wherein the number of discs is 1.

- 25 12. The disc drive of claim 10 wherein the number of discs is greater
than 1.

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13. The disc drive of claim 12 wherein the biasing forces corresponding
to each prewritten disc are evenly spaced about the spindle motor hub.

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14. The disc drive of claim 12 wherein the number of discs is an even
number.

15. The disc drive of claim 14 wherein, for each disc in the disc stack assembly, the corresponding biasing force for a particular disc is opposite from a biasing direction corresponding to any disc above and below the particular disc.

5 16. The method of claim 10 wherein at least one of the steps is performed by a robotic assembly.

17. The method of claim 10 wherein at least one of the steps is performed by a human worker on an assembly line.

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18. In a disc drive having a spindle motor hub and a number of prewritten discs, a method for forming a disc stack assembly to reduce servo pattern runout, the method comprising steps of:

- (a) prewriting the servo pattern for each disc while applying biasing forces corresponding to each disc;
- (b) while forming the disc stack assembly, precisely monitoring the position and orientation of each disc relative to the biasing forces applied during the prewriting of the servo pattern;
- (c) placing each disc in a carrier for storage;
- (d) for a first prewritten disc at the time of forming the disc stack, taking the prewritten disc from the carrier and placing the prewritten disc about the spindle motor hub of the disc drive;
- (e) for the first prewritten disc, aligning the disc in relation to a direction of the corresponding biasing force applied during the prewriting of the servo pattern;
- (f) for the first prewritten disc, applying the same corresponding biasing force applied during the prewriting of the servo pattern to the disc to pressingly engage the disc against the spindle motor hub;
- (g) repeating steps (d) through (f) for each remaining prewritten disc in the disc stack assembly; and
- (h) clamping the prewritten discs with a disc clamp to secure the position of each prewritten disc relative to the spindle motor hub.

19. The method of claim 18 wherein at least one of the steps is performed by a robotic assembly.

20. The method of claim 1 wherein all of the steps are performed by a robotic assembly.